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rooted vegetables might be raised in it to advantage would be proportionally remote; might it not be advantageous to select those vegetables for the first crops, which are known to thrive in a salt soil? several of this nature, from which soda is procured, are cultivated to advantage in foreign countries, and would also succeed well here; some plants also which afford abundance of potash flourish in the vicinity of the sea. Rape likewise has been known to succeed on lands of this nature. It is probable also that certain substances laid on the land would accelerate the decomposition of the salt; of those, lime is the most obvious, as well as the most easy to procure. But, where plenty of fresh water can be had, which is the case in most situations near the sea in Ireland, it seems most consonant to reason, that frequently flooding the salt ground with fresh water from the neighbouring brooks, and again draining it off, would free the land from the salt with more expedition than most other methods, and therefore that at least it deserves to be tried in a free and impartial manner.

As the embankment of land from the sea is evidently a subject of great importance, it is intended to select papers conveying farther information respecting it, for the future numbers of this miscellany.

Mr. Harriot is now magistrate of the Thames police, an establishment planned by himself, where he still continues those useful exertions for the public benefit, which have so frequently graced his eventful life.

Farther account of the Action of De Luc's Electric Column.

The small bells, moved by De Luc's electrical column, which have been noticed in our last number, still continued to ring on the 25th of June, as they had done since the 25th of March. Those who wish to have electrical columns of this kind, fitted up in the form of rods, as described in our number for April last, may now obtain them from Mr. Blount, optician, Cornhill, London.

An account of the Method of manufacturing Salt at Moutiers, in the Department of Mont-Blanc. By M. Berthier, Mine Engineer.

Journal Des Mines.

The springs which supply these salt-works are about a chiliometre (rather more than half a mile) from the town of Moutiers, in the centre of Salins, a small village near the junction of the two rivers Doron, in a valley of the same name. The springs issue from a limestone rock, at the foot of a precipice fifty metres (yards) high, adjoining to which is a formation of gypsum. They probably rose formerly to the surface of the ground, but at present those which are worked are seven metres below it. The present works are of some standing, and were probably erected in 1730; but their books were lost at the time of the invasion of the Spaniards in 1743. The antient Earls of Salins had also extracted salt from another spring in this neighbourhood, the water being brought up by an endless chain of buckets, running over a wheel, in which women walked. It was concentrated by being poured repeatedly upon bundles of straw, and then evaporated in boilers. This spring was destroyed in the war of 1690.

The temperature of the water of these springs is from 25° to 30° Ream. or 88° to 99° Fahr. It emits many bubbles, and shows from 1° 50 to 1° 83 by Baume's hydrometer, which is used in all the French salt-works, and of which the degrees are equal to one fifteenth of the stem between the level to which it sinks in distilled water, and which is taken for the point whence the degrees are reckoned, and that to which it sinks in a solution of fifteen parts of muriate of soda in eighty five of water at 10° Ream. or 55° Fahr.

100lbs. of the spring called the little spring, contains only 1.058 of muriate of soda, 0.251 of sulphate of lime, 0.1 of sulphate of soda, 0.076 of carbonate of lime, 0.075 of uncombined carbonic acid gas, 0.055 of sulphate of magnesia, 0.0305 of muriate of magnesia, 0.012 of carbonate of iron, and 0.01 of muriate of iron.

Since 1755 the springs yield more water than before, but it is not so rich. They stopped running at the time of the earthquake at Lisbon, and remained in that condition for forty-eight hours, but afterwards flowed as usual.

The present mode of working them is nearly the same as was introduced into Savoy in 1730, by the Saxon miners, which were sent for by the king of Sardinia. The water is conveyed from the spring to the salt-works at Moutiers in wooden troughs, about nine inches wide, in which a considerable quantity of oxyd of iron and carbonate of lime is deposited, so that the troughs, which are about a chiliometre in length, are obliged to be frequently cleaned out. Green filamentous plants grow in them, and these rotting, impregnate the water, so that it smells very disagreeable till the gases are dissipated during the course of the graduation. When the water arrives at the works it marks 1°.5 or 1°.6 by the hydrometer. It still retains much carbonate of lime, and a little carbonate of iron, and has not deposited a single atom of the sulphate of lime.

As fuel is too dear to allow the water to be evaporated immediately, it is passed through several graduation-houses, in order to concentrate it, and to get rid of some of the salts with which the muriate of soda is mixed.

The salt work has, for this purpose, four sheds with faggots, and a fifth with ropes. The former were built in 1730, by Mr. Beust; three, which were destroyed in 1766, were rebuilt in 1781. The fifth was not built till 1788, by the Chevalier Dubutet, who invented it.

The water, divided into two parts, passes partly through the shed No. 1, and partly through the shed No. 2. The two portions are afterwards re-united and concentrated in the shed No. 3; and thence it is conveyed to No. 4, and afterwards into the boilers. In the bad season, when it comes from No. 4, it is raised up to the rope-shed, which cannot at that time be employed for another use, of which hereafter, and thence it is conducted to the boilers.

These sheds are disposed in such a manner as to receive all the wind which passes through the Gorge d'Aigueblanche. They are built nearly directly across the most usual direction of the current of the air, and rather inclined to one another, so as to impede the current as little as possible. By means of this arrangement, some of them receive the advantage of the air that comes from the valley of Doron; but the mass of that air being inconsiderable, and its velocity small, it does not produce much effect.

The shed, No. 1, is 350 metres (yards) long, and built upon three rows of stone pillars. It is divided into two equal parts by the shed that contains the pumps. The whole mass of it is wood work, and is entirely filled with faggots, that form a kind of continuous wall. It is eight metres in height, and is three metres broad at bottom, and two at top.

The water is raised to the top of the building by means of eight pumps; the handles of which are fixed at the two ends of a lever, put in motion by a water wheel. The machine is well contrived, and is furnished with segments which produce a motion without shocks, or any considerable friction: and if any inequality is observable in the velocity, it depends upon the nature of the plain handles, and probably on a defect of equilibrium between the two sets of pumps.

The water, alternately pumped up by each set, is thrown by one set on one division of the building, and by the other on the other division. The four first pumps take up the water from a small wooden cistern that receives the water from the spring, the others from a second cistern, into which the water that has already passed once through the first division of the building is received. The water is distributed by means of two rows of gutters, placed on the sides of the building; each row throws the water upon one side only of the building, and they are used alternately, as the wind blows on one side or the other. It is the side exposed to the east that the wind most generally blows upon; the opposite row of faggots seldom serves for any other purpose than to catch the spray, and thus prevent any loss. The gutters are furnished from metre to metre with smaller gutters, whence the brine is conveyed in still smaller gutters, a decimetre (three inches) broad, and which have small indentures on each side, a decimetre from each other, to allow the water to run over upon the faggots The brine that comes from the first division marks 2° hydrom. and is raised up to the top of the second as often as is necessary to bring it to 3°. In fine weather, this is performed by one raising The deposite that it forms is very slight, and the faggots being thus exposed for a long time to the action of air, and the brine being very weak, speedily rot. Whence the bad smell that the brine receives from the canal in which it has flowed is augmented; and this is also the source of the vegetable extractive matter that the saturated brine contains. It has been remarked, that the ochreous calcerous deposite is only formed between 2° and 3° hydr.

The building No. 2 has the same destination as the preceding. It is also divided into two divisions by the hydraulic machines. It is 318 metres long, of which only 262 are furnished with a double range of faggots; the remainder is taken up with uprights of masonry, which support the girders four by four, and render buttresses unnecessary. It is supplied with brine by eleven pumps, five for the first division and six for the second; these last also convey the brine to the building, No. 3, which lies higher. The piston rods are fixed two and two at the ends of the strong balance-wheels of carpentry, put in motion by a water wheel This machine is very heavy, and ill contrived; but as water is abundant, it produces the desired effect. The brine from No. 2 is generally stronger than that of No. 1, because it has run farther in the canal by which it is brought to the work. The building itself is also 9 metres high, and it is also much more exposed to the wind from the Gorge d'Aigueblanche.

No. 3 is 350 metres long; of which 340 are furnished with faggots to the height of 8 metres It is entirely composed of wood work, and covered with a roof three times as broad as the building which completely shelters the faggots. Every second girder is supported by wooden buttresses upon a base of masonry. Timber is employed in profusion for its construction.

This shed comprehends seven divisions through which the brine collected from Nos. 1 and 2 are passed in succession The first is about sixty metres long, and is supplied by two pumps; the second the same; the third fifty-five metres with two pumps; the fourth forty-eight metres and two pumps; the fifth forty-two metres and only one pump; the sixth thirty-six metres and one pump; and the last thirty-five metres and one pump The water wheel which serves to put the whole machinery of the pumps in motion lies along the middle of the building. The distribution of the different parts of this machine is well conceived, but the workmanship of it having been carelessly performed the friction is so very considerable, as to obstruct its motion, and make it require frequent repairs.

The brine before it is passed through No. 3, marks 3° or 3°5 hydrom. In fine weather it is only passed once through each division, and marks when it has passed through the seventh, 10 or 12°. When the weather is not favourable, it is passed through them as often as is necessary, so that it may attain at least 9°. It is then sent to the building No. 4

This building No. 4, is sixty-two metres long, of which fifty five are furnished with faggots, ten metres high, and four broad at the bottom. It is strengthened every fifth girder, with pillars of masonry, without buttresses. It is covered, but its roof, which is much less wide than that of the preceding is supported by these pillars. A water wheel puts in motion four pumps. This wheel like those of the other buildings is between seven and eight metres in diameter, and the pumps are from fourteen to twenty two centimetres (5½ to 6½ ins) in diameter.

Two of these pumps convey the brine to the top of the building, the two others convey the brine after it is graduated into cisterns made on purpose. As the brine is pretty rich when it is brought to this building, a double set of gutters are used, which pour it on either side according to the direction of the wind, in the middle of the breadth, so that the brine runs among the thorns, and it is less dispersed in the air.

In the most favourable weather for graduation, the brine is concentrated as high as 21° or 22° hydrom. upon this building, No. 4, most commonly to 18°, and only from 12 to 14° in winter or autumn. In this case it is conveyed on the building furnished with ropes to bring it to 16 or 18°.

The situation of the ground did not allow this rope shed to be built in a straight line: it is rather bent, and principally receives the wind from the valley of Doron: nevertheless one part of it also receives that from Aigueblanche, and here the graduation goes on the quickest. The whole length of the building is ninety metres, of which only seventy are furnished with ropes. The carcase is composed of seven large girders upon masonry, and seventeen others on uprights of carpentry. It has an irregular roof, which spreads out a great deal on the side to which the wind usually carries the brine: The interval between each girder comprises twelve gutters 0 13 metre (5 inches) in breadth, and the same distance from each other. These gutters are pieces of wood slightly hollowed, each of which supports twenty-three endless ropes, from between 0 007 and 0.008 metre (1 3rd inches) in diameter; these ropes pass through holes made for that purpose, and are fixed to pullies that are ranged in the lower part of the building. Thus each gutter carries forty-six lengths of ropes, and as there are in all 259 gutters, the building is furnished with 11914 ropes; now as each of these ropes are 8 24 metres long, it follows that it required more than 100,000 metres, or seventy five miles of rope when the building was first constructed.

The machine that raises the brine is an endless chain of buckets moved by a water wheel. It is composed of three double chains, to which are attached a triple row of wooden buckets. The brine raised by these buckets runs into a small basin from whence it runs through a canal that passes along the middle of the building; from hence it runs into other canals which lie between each girder, and from thence it is distributed by twelve gutters, into those which support the ropes. Lastly the notches made over the ropes allow it to pass along them. The surplus that is not evaporated dripping upon the inclined boards that form the floor of the building, is collected in troughs which convey it either to the cistern belonging to the machine, so that it may be again raised, or to cisterns made on purpose to receive it, and placed all along the length of the floor. The evaporation by means of these ropes is much swifter than that caused by the faggots, as the air circulates more freely, and exercises its action upon a greater surface.

The overseers complain of the slight effect of the machine in raising the brine, of its expense, and of the continual repairs that it requires. Nevertheless it is proper for the purpose, as pumps could not be employed. The real inconveniences are 1° that the chains are too slight to resist for any length of time the force that is required; 2° that the bucket way is too small, so that oscillations of the chain throws the buckets continually against the sides, by which means they are bruised. 3° In that the drum wheels are too small, by which the buckets are bruised against the partitions that separate the three chains. 4° Lastly, that the chains do not use the drum-heads, equally, as they do not turn constantly in the same plane, but fall by starts from one cavity to another, and derange the machine. Their movement ought to be regulated, and they should be made to turn upon a band furnished with solid points. More brine would be raised if the buckets only rose from the basin at the depth of the centre of the lower drum; they would also lose much less brine if their open mouths were longer, for in their present state, the brine of the bucket that is being emptied, falls upon the bottom of that which preceded it, is scattered about, and does not reach the destined spot.

This rope shed is furnished on the side on which, the wind most commonly blows with canvass blinds or rollers, and these are let down in very beating weather.

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MEDICINE, SURGERY, BOTANY, CHEMISTRY.

The Edinburgh Medical Journal, No. 23, price 3s.

The Syphilitic Preceptor, a Practical Treatise on the Cure of the Venereal Disease; by Surgeon Skelton, 2s. 6d.

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Account of the Remarkable Effects of the Eau Medicinale D'Huson in the Gout; by Edwin Godden Jones, M D 4s. 6d.

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